thermoplastic bonding material. The component can be formed from the bonding material, or the surface can be treated with the bonding material. Alternatively, referring to **FIG. 3**, thermoplastic bonding films **90** can be disposed between components **20**, **30**, **30'**, **34**, and **34'**. The components can then be bonded at sufficient temperatures and pressures to bond the components together, for example, at temperatures greater than 150°C, 200°C or 250°C and pressures sufficient to form the bond. Referring to **FIG. 4**, thermoplastic bonding films **100** and **102** can be patterned, for example, using a laser, and disposed between components **10**, **12**, and **14**.--

Please replace the paragraph beginning at page 5, line 6 as follows:

--Referring to FIG. 2, piezoelectric element **34** registers over film **30**. Piezoelectric element **34** has electrodes **40** on the side of the piezoelectric element **34** that contacts film **30**. Electrodes **40** register with electrical contacts **31** on side **51** of film **30**, allowing the electrodes to be individually addressed by a driver integrated circuit. Electrodes **40** can be on a surface of piezoelectric element **34**. Electrodes **40** can be formed by chemically etching away conductive metal that has been deposited onto the surface of the piezoelectric element. Suitable methods of forming electrodes are also described in U.S. Patent No. 6,037,707, which is herein incorporated by reference in its entirety. The electrode can be formed of conductors such as copper, aluminum, titanium-tungsten, nickel-chrome, or gold. Each electrode **40** is placed and sized to correspond to a channel **22** in body **20** to form a pumping chamber. Each electrode **40** has elongated region **42**, having a length and width slightly narrower than the dimensions of the pumping chamber such that gap **43** exists between the perimeter of electrodes **40** and the sides and end of the pumping chamber. These electrode regions **42**, which are centered on the pumping chambers, are the drive electrodes that cover a jetting region of piezoelectric element **34**. A second electrode **52** on piezoelectric element **34** generally corresponds to the area of body **20** outside channel **22**, and, accordingly, outside the pumping chamber. Electrode **52** is the common (ground) electrode. Electrode **52** can be comb-shaped (as shown) or can be individually addressable electrode strips. The film electrodes and piezoelectric element electrodes overlap sufficiently for good electrical contact and easy alignment of the film and the piezoelectric element. The film electrodes extend beyond the piezoelectric element to allow for

A2 cont.

a soldered connection to the flex print **32** that contains the driving circuitry. Component **30** can be formed from the thermoplastic bonding material.--

Please replace paragraph beginning at page 6, line 11 as follows:

--The orifice plate can be manufactured from self-adhering materials such as a thermoplastic bonding component, for example, a polyimide. The thermoplastic bonding component is stable in the presence of inks and cleaning materials. The orifice plate made from a themoplastic bonding component can be manufactured using laser ablation techniques, for example, with an excimer laser, or by other manufacturing methods. Referring to FIG. 4, orifice plate protector strip 110 can be placed over the nozzles of orifice plate 14 to prevent contamination during manufacture and before use. The protector strip can be a thermoplastic

A3

bonding material, such as UPILEX VT. The strip can be lightly adhered to the nozzle exit face by varying the temperatures and pressure of the bond to achieve the degree of adhesion required to peel the strip when the printing module is to be used. The strip can be applied to a wide variety of nozzle materials, such as metals, plastics, and ceramics. If the orifice plate is made from a thermoplastic bonding component, such as an adhesive polyimide, for example, UPILEX VT, a strip of another material, such as another polyimide, for example, UPILEX S, can be lightly adhered to the nozzle.

Please replace paragraph beginning at page 7, line 8 as follows:

--Ink jet printing modules can include a filter that can prevent oversized solid material in the ink from entering a channel and clogging an exit orifice of the module. A film having a pattern of holes can be disposed over the channels to form the filter. Referring to FIG. 5, pattern

A4

200 of previous filters is a continuous array of holes 202. The holes have an average diameter of 25-30 microns, and a center-to-center spacing of 45 microns. The array of holes is continuous and has a width of 2000 microns. The filter can have a width of 300 to 495 microns. --

In the claims:

Please amend claims 1, 20, 21, 30, 39 and 42 as follows:

Sub A5 D1

--1. (Amended) A method of manufacturing an ink jet printing module comprising: